

CLAIMS

1. A two-shaft hinge that has a rotary shaft and an opening/closing shaft and enables a rotational action and an opening/closing action, wherein,

the rotary shaft is inserted into the opening/closing shaft by fitting the rotary shaft into a through hole provided in a vertical direction with respect to a longitudinal direction of the opening/closing shaft;

a fixed cam, a rotary cam and a spring are inserted into each of the rotary shaft and the opening/closing shaft;

the fixed cam and the rotary cam abut by the spring force;

the abutting cams and the spring compose a torque unit that independently generates a sliding frictional torque at the rotational action and the opening/closing action;

a rotational action of the rotary shaft is limited by a rotation limiting mechanism depending on a rotational angle of the opening/closing shaft; and

the rotation limiting mechanism limits the action by abutting faces to limit at two locations provided between the rotary shaft and the opening/closing shaft.

2. A two-shaft hinge equipped a rotation limiting mechanism that has a rotary shaft and an opening/closing shaft and enables a rotational action and an opening/closing action, wherein,

the rotary shaft is inserted into the opening/closing shaft by fitting the rotary shaft into a through hole provided in a vertical direction with respect to a longitudinal direction of the opening/closing shaft;

a fixed cam, a rotary cam and a spring are inserted into each of the rotary shaft and the opening/closing shaft;

the fixed cam and the rotary cam abut by the spring

force;

the abutting cams and the spring compose a torque unit that independently generates a sliding frictional torque at the rotational action and the opening/closing action;

a rotational action of the rotary shaft is limited by a rotation limiting mechanism depending on a rotational angle of the opening/closing shaft; and

the rotation limiting mechanism limits the action by abutting faces to limit at a single location provided between the rotary shaft and the opening/closing shaft.

3. A two-shaft hinge equipped with a rotation limiting mechanism according to claim 1 or claim 2, wherein, a part of the rotary shaft has a cross-section which has a long diameter and a short diameter, and a width of an aperture thereof has a width such as to obstruct rotation of the rotary shaft while abutting on this cross section, depending on an angle of opening/closure of the opening/closing shaft and a width such as to make rotation of the rotary shaft possible, or, a rotation limiting groove or a rotation limiting plate is formed in an area on a side of a drive body.

4. A two-shaft hinge equipped with a rotation limiting mechanism according to claim 1 or claim 2, wherein, the opening/closing torque mechanism of the opening/closing shaft is arranged concentrated on one side, either left or right of an axial direction with respect to the shaft hole of the opening/closing shaft through which the rotary shaft passes, while the other side thereof constitutes a space region for wiring or the like.

5. A two-shaft hinge equipped with a rotation limiting mechanism according to claim 1 or claim 2, wherein, the

opening/closing torque mechanism of the opening/closing shaft comprises units at two or more locations, said units generating a frictional torque by a repulsive force of the spring at the abutting cam faces by abutting the rotary cam capable of rotation and the fixed cam that is movable in an axial direction and rotates in unison with the opening/closing shaft and engaging the fixed cam and the rotary cam through the opening/closing shaft.

6. A two-shaft hinge equipped with a rotation limiting mechanism according to claim 1 or claim 2, wherein a range of rotation of the rotary shaft and the opening/closing shaft is limited by providing a stop mechanism for limiting the rotation and the opening/closing angle of the rotary shaft and the opening/closing shaft.

7. A two-shaft hinge equipped with a rotation limiting mechanism according to claim 1 or claim 2, wherein, in order to generate a click action at a specified position during the rotational action and the opening/closing action of the rotary shaft and the opening/closing shaft, a mechanism that generates a click action is provided by providing a projection and recess on the fixed and the rotary cam constituted on the shafts for generating torque and abutment of the projection and recess of the fixed cam and the rotary cam, or by adding an abutment location of a projection and recess on the rotary shaft and the opening/closing shaft.

8. A two-shaft hinge equipped with a rotation limiting mechanism according to claim 1 or claim 2, wherein the rotary shaft and the opening/closing shaft respectively have a cross-section formed to be a cross-section other than circular at a sliding location of the fixed cam so that the fixed cam integrally rotates with the shafts while sliding.

9. A two-shaft hinge equipped with a rotation limiting mechanism according to claim 1 or claim 2, wherein a bracket component is added on the opening/closing shaft so as to dispose and fix the two-shaft hinge to an outer frame, and the hinge is fixed by the bracket.